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ABSTRACT

Of 21 studies on the effect that question placement had on reading comprehension, ten favored and eleven opposed the use of prequestions. A review of these studies suggests that the issue is not whether prequestions or postquestions produce greater gains in reading comprehension. What remains to be examined is the change in reading comprehension that occurs with the interaction between question placement and such variables as sex, intelligence, and socioeconomic background. (RL)

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A SUMMARY OF STUDIES RELATED TO THE EFFECT OF QUESTION PLACEMENT ON READING COMPREHENSION

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The development of the processes by which meanings become associated with symbols must be provided for in any reading program. According to Strong (1969), the mature reader must not only understand the literal meaning of a passage, but also interpret the author's statements, make critical judgments, inferences and evaluations, and form conclusions and make generalizations. The degree of accuracy of comprehension called for, motivation, and the purpose for reading determine what level of comprehension students read (Wall, 1971). Reading comprehension can best be inferred by observing the behavior of the reader when responding to comprehension questions--written or oral (Hoskisson, 1973). Harris (1970) emphasizes that questions are useful not only as an indicator of competency in reading comprehension, but as a basis of strategies for teaching comprehension. It is generally agreed upon that both the type as well as the placement of questions affects pupils' comprehension. This article, however, is primarily concerned with question placement. Specifically, a review of the research dealing with the effectiveness of pre and post questions on reading comprehension is presented. This summary should be a primary consideration for any teacher interested in developing questioning strategies.

Research Showing the Advantages of Prequestioning

The first reported study which dealt with the effect of prequestioning techniques on reading comprehension was conducted in 1921 by Germane. He compared the comprehension levels of students who had been given a set of questions prior to their reading the selection as opposed to those who had been allotted the same amount of time to re-read the selection and reported that the group that had been exposed to the prequestioning treatment achieved the higher results. Germane (1921) also conducted a replication of the above study using 88 college sophomores and obtained similar results. Based on these findings, Germane concluded that it would be more advantageous to present questions to children before reading an article than to allocate the same amount of time having children reread the selection.

The findings of Germane prompted similar experiments. In an effort to determine the reliability of the Germane study, Holmes (1931) conducted a study with the same

stated purpose. In addition, Holmes was interested in the effect of prequestioning on delayed recall and the interaction of question placement and the nature of the material presented. Results showed that both experimental groups scored higher than did the two control groups. On the basis of these results, Holmes concluded that since reading guided by prequestions surpasses rereading without questions in both the immediate recall and delayed recall of answers to questions it is beneficial to provide students with questions for guidance in reading material.

Yoakan and Truby (1926) were concerned with the effect on comprehension of prequestions that were general in nature. Reported results indicated that the experimental group which had received the prequestions scored a grade equivalent of seven months higher than did the control group that received no stated purposes.

The studies mentioned thus far have sought to measure the effectiveness of questions occurring prior to the material. In some instances, the prequestions had been generated by the subject, in others the questions had been predetermined by the experimentor. In addition, the type of prequestions also differed. For example, the prequestions used in the Yoakan and Truby (1926) study were general, in contrast to the specific prequestions used by Germane (1921).

Distad (1927) conducted a unique study which sought to incorporate several facets of the previously mentioned experimental studies. More specifically, the four treatments were: 1) reading to find answers to eight specific prequestions presented by the experimentor, 2) reading to find answers to eight specific prequestions raised by the subjects themselves, 3) reading to find the answer to a general problem, 4) reading with no direction. One hundred and twenty junior high school students were divided into one of the four treatment groups based on results of scores from I.Q. and reading ability standardized tests. All subjects were given four identical reading passages.

The time for each group was recorded. After reading the selections, each group received 30 factual questions which required one-word answers. The following results were obtained. Subjects who were presented with prequestions that were devised by

the examiner achieved the highest score, while subjects who raised their own questions prior to reading the selection achieved the next highest. Subjects who had been given a general problem prior to their reading the material achieved the third highest and the lowest score was obtained by the group who received no direction. Based on these results, Distad concluded that directed reading aids in the development of reading habits which increase reading comprehension.

A final study of the 1921-1931 era which demonstrated the positive effects of a prequestioning strategy was conducted by Washburne (1929). Washburne sought to determine the value of placing questions in various positions. A conclusion of the study was that question location is an important variable in the mastery of material and that the best placement is the grouping of all questions at the beginning of the story, while the worst placement is the grouping of all questions at the end of the story.

Shores (1960) was interested in the recollection of information which was not specifically asked in prequestioning treatment. Group one was instructed to read the selection and was given no stated purpose. Group two was instructed to read the selection to restate the major events in their proper sequence. Group three was instructed to read the selection in order to find the main idea. Results indicated the group that had been instructed to read the material for the main idea achieved the highest raw score, while the group that had been given no direction achieved the lowest. Shores concluded that presenting one general question to students prior to their reading the material aided in the recall of factual information. Ballard (1965) sought to determine the effectiveness of different types of prequestions on the comprehension of a story-type reading selection. Group A received prequestions that contained references to specific detail from the selection, Group B received pre-questions that were concerned with the main idea, while Group C received no prequestions. Based on the results, Ballard concluded that guiding (Group A) questions resulted in the highest comprehension, while motivating questions (Group B) were more beneficial than no prequestions.

Henderson (1964) was interested in comparing the effect on comprehension of prequestions generated by the student himself as opposed to prequestions generated by the teacher. Group one was asked to provide for itself a collective purpose prior to reading the selection, Group two received a teacher generated purpose for reading the selection; Group three received no stated purpose. The results indicated that the most effective prequestions are those that are generated by the student himself. However, a teacher generated prequestion is more advantageous than the use of no prequestions.

In an effort to determine the relationship between asking questions to develop a purpose for reading and reading achievement, Fincke (1968) used two different forms of an informal reading inventory. Form A of the inventory included purpose setting questions, while form B included only postquestions. A comparison of the means of the two groups indicated that subjects scored significantly higher when purpose setting questions were included.

Research Showing the Negative Results of Prequestioning

Until the 1950's all the studies lent credence to the hypothesis that prequestioning had positive effects on reading comprehension. The investigations presented in the following section failed to support this theory.

The earliest experiment which resulted in the highest achievement being obtained by the group reading without a specific purpose was conducted by Christensen and Stordahl (1955). The purpose of the study was to measure the effect organization aids and questions had on reading comprehension. Group A was given prequestions. Group B was not. Based on scores obtained by both groups after reading two selections, the conclusion was drawn that prequestions do not improve reading comprehension. While the previous investigation was conducted using adults as subjects, Snavely (1962) obtained similar findings with fourth- sixth- and eighth-grade students.

Bloomer and Heitzman (1965) also used grade school students as subjects for their experiment. On the basis of results obtained from reading comprehension and I.Q. scores, 80 eighth-grade students were assigned to one of the following treatments:

1) Prequestions were presented to the subject before reading the selection; 2) No prequestions were presented to the subjects before reading the selection; 3) Prequestions were presented to the subjects before reading the selection in which the cloze procedure was used; 4) No prequestions were presented to the subjects before reading the selection in which the cloze procedure was used. Mean scores were reported as follows: Since the highest scores were achieved by groups four and two, while groups one and three achieved the lowest scores, the investigators concluded that prequestions do not increase reading comprehension.

In an experiment with one hundred and fifty-nine university students Rothkopf (1966) concluded that prequestions distract the student in that he becomes interested in finding the answer only to the specific question asked, whereas test like questions presented after the material increase comprehension in that they have both general and specific facilitative effects on performance.

Grant and Hall (1967) were concerned with the effect of a broad thought directing prequestion on reading comprehension. The sample included 279 sixth-grade students who were randomly assigned to either the experimental or control group. Both groups were informed they would be given ten multiple-choice questions following the reading of the selection. In addition, the experimental group was given one broad thought directing question immediately prior to being presented with the reading material. The control group received no prequestion. Both groups were sub-divided into below average, average, and above average readers on the basis of scores from standardized reading tests. Mean raw scores were obtained for each subgroup. For the average readers, the experimental group scored significantly higher than did the control group. However, no significant difference was reported between the control and experimental groups with the below and above average subjects. The experimentors suggested that above average students formulate their own purpose for reading and, therefore, are not aided by broad thought directed questions.

Goudey (1968) was also interested in the effect of directed reading on subjects of various reading achievement levels. He divided 300 fourth grade students into

two treatment groups, subjects in each group were again divided into reading ability groups. In analyzing the data according to reading achievement level, Goudey reported that there was no significant difference between the experimental and control groups for the upper and lower reading achievement levels. Within the middle level, the group who had read under nondirected conditions achieved significantly higher than the group which read under directed conditions.

Frase (1968) proposed that characteristics of questions such as type, placement, and contiguity to related content influence learning. Using twelve treatment groups, he placed questions in various positions throughout the paragraphs. The conclusion drawn was that comprehension increased with the frequency of postquestions and decreased with the frequency of prequestions. Frase (1970) replicated his original study. The second study substantiated his first findings.

Brady (1974) wanted to determine how stated purposes for reading affect reading comprehension of children at different ability levels. Subjects were stratified into low, middle and high levels according to results obtained from non-verbal I.Q. scores. Based on the results, Brady concluded that comprehension was not increased by provided stated purposes for reading.

Mottley (1972) conducted a study using various types of comprehension questions in order to determine the effect of prequestioning on reading comprehension scores of children. It was concluded that prequestions do not increase reading comprehension for either low, middle or high ability groups. In addition, the effectiveness of the prequestion is not determined by the question type.

Chadwick (1972) was interested in determining the effect of written prequestions of reading comprehension. While the control group was administered the test in its original format, the experimental group was administered the test in an adapted form which included prequestions. Based on the results, Chadwick suggested that prequestions may lower motivation and hence serve as distractors, thus causing a lower level of comprehension.

Wiesendanger and Wollenberg (1978) studied the effects of inferential prequestions and factual prequestions as well as no prequestions on reading comprehension. Results

of the study indicated that while the group that were given the inferential prequestions scored significantly higher than did the group receiving factual prequestions, the group that received no prequestions achieved the highest results. An interesting aspect of their research was the fact that in the postquestioning treatment, additional questions were included that had not been included in the prequestion treatment. The researchers concluded that while the students given prequestions may in fact be able to better answer those specific postquestions that they had received also as prequestions, they were less able than the control group to answer additional questions.

Conclusion

Twenty studies have been reported which sought to determine the effect of prequestioning on reading comprehension. Of these studies, ten favored while ten opposed the use of prequestions. After reviewing the research in this area, one might conclude the issue of question placement to be more complicated than previously theorized. For example, in one of the studies presented (Henderson, 1964) the prequestions had been generated by the subject; in others (Goudey, 1968 and Brady, 1974) the prequestions had been determined by the experimenter. These findings indicate that whether or not the subject generates his/her own questions is of significant importance. It would appear that prequestions are more effective if generated by the student than by the teacher. More research should be conducted in this area to determine the effect of student generated prequestions as opposed to teacher generated prequestions on reading comprehension.

In addition, the type of prequestions also differed. For example, the prequestions used in the Yoakam and Truby (1926) and Shores (1960) were general in contrast to the specific prequestions used by Germane (1921). While both Shores and Germane found that children who received prequestions scored significantly higher in spite of the type of question asked, Wiesendanger and Wollenberg (1978) findings indicated the type of prequestion was a prime factor in determining comprehension results. The group that received inferential type prequestions achieved significantly higher than did the group whose prequestions were factual in nature. Since a unique aspect of their study was that additional postquestions were included that had not been incorporated in the prequestion treatment, one might speculate that factual prequestions contributed more to students focusing attention on specific details, thus lowering overall comprehension in reading. Consequently, a second area of study might be to what extent the level or type of prequestion asked effects comprehension ability.

Intelligence and reading ability are final variables that deserve special consideration when dealing with the prequestioning issue. The findings of Grant and Hall (1967) indicated that average or above average readers who did not receive pre-

questions achieved higher scores while the below average readers scored higher in reading comprehension if they received prequestions. Consequently, one might hypothesize that average or above average readers are better able to formulate their own purpose for reading than are below average readers.

In summary, one might suggest that the issue is not whether prequestions or postquestions produce greater gains in reading comprehension. Other factors, such as whether or not the prequestions are generated by the student or the teacher, the type of prequestion asked, as well as the intelligence and reading ability level of the student are crucial in determining what questioning strategy a teacher selects. More research should be conducted in order to determine if one should prequestion, how one should prequestion, and under what circumstances prequestioning would be most effective.

BIBLIOGRAPHY

Ballard, G. L. The effect of guiding and motivating questions upon the reading comprehension of fourth and fifth grade pupils. Dissertation Abstracts, 1965, 25, 4568.

Bloomer, R. H. and Weitzman, A. J. Pretesting and the efficiency of paragraph meaning. Journal of Educational Psychology, 1965, 50, 219-233.

Bond, G. L. and Tinker, M. A. Reading difficulties: their diagnosis and correction. Englewood Cliffs, New Jersey: Prentice Hall, 1973.

Brady, L. How stated purposes for reading affect reading comprehension scores of fifth grade students in a midwestern suburban school district. Unpublished doctoral dissertation, University of North Dakota, 1974.

Chadwick, S. C. The effect of written prequestioning on reading comprehension of fifth grade students. Unpublished doctoral dissertation, Ball State University, Muncie, Indiana, 1972.

Christensen, A. J. and Stordahl, R. The effect of organizational aids on reading comprehension. Journal of Educational Psychology, 1955, 46, 65-74.

Distad, H. W. A study of the reading performance of pupils under different conditions on different types of materials. Journal of Educational Psychology, 1927, 18, 247-258.

Frase, L. T. Boundary conditions for mathemagenic behaviors. Review of Educational Research, 1970, 40, 337-348.

Germane, C. E. Outlining and summarizing compared with rereading as methods of studying. Report of the society's committee on silent reading, Twentieth yearbook of the national society for the study of education, Part II. Chicago: University of Chicago Press, 1921.

Goudey, C. E. A comparison of children's reading performance under directed and non-directed conditions. Unpublished doctoral dissertation, University of Minnesota, 1968.

Grant, E. F. and Hall, M. The effect of purposeful reading on comprehension at differing levels of difficulty. Paper presented at the International Reading Association Conference, May, 1967. ERIC ED 015828.

Harris, J. J. How to increase reading ability (5th ed.) New York: David McKay Company, 1970.

Henderson, E. H. A study of individually formulated purposes for reading in relation to reading achievement comprehension and purpose attainment. Dissertation Abstracts, 1964, 24, 5529.

Holmes, E. Reading guided by questions versus careful reading and rereading without questions. School Review, 1931, 39: 361-171.

Hoskisson, K. False questions and right answers. The Reading Teacher, 1973, 11(27), 159-62.

Mottley, R. The effect of prequestioning versus no prequestioning reading conditions upon subsequent comprehension scores, Unpublished doctoral dissertation, University of Georgia, 1972.

Rothkopf, E. Z. Learning from written instructive materials: an exploration of the control of inspective behavior by test-like events. American Educational Research Journal, 1966, 3, 240-249.

Shores, H. J. Reading of science for two separate purposes as perceived by sixth grade students and able adult readers. Elementary English, 1960, 37, 461-468.

Snavely, A. E. The effectiveness of purpose statements and marginal notes as aids to reading comprehension, Dissertation Abstracts, 1962, 22, 2711.

Strang, R. Elementary reading instruction. Boston: Allyn and Bacon, Inc., 1969.

Tinker, M. A. and McCullough, C. M. Teaching elementary reading (2nd ed.) New York: Appleton-Century-Crofts, 1962.

Wall, S. Detection and correction of reading difficulties. New York: Appleton-Century-Crofts, 1971.

Washburne, J. N. The use of questions in social studies material. Journal of Educational Psychology, 1929, 20, 321-359.

Wiesendanger, K. D. and Wollenberg, J. P. Prequestioning inhibits third grader's reading comprehension. The Reading Teacher, 1978, 31, 892-895.

Yoakam, G. A. and Truby, C. The effects of certain practice exercises in reading. School of Educational Journal, 1926, 1, 60-61.